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ABSTRACT

In 1988, Sinclair Community College (SCC) began a comprehensive study of the need for a new administrative information system that would improve the college's effectiveness and flexibility in providing educational and administrative services. A planning committee provided college-wide coordination for the development of a request for proposal (RFP) that reflected departmental and technical needs, the evaluation of various proposals against the criteria in the RFP, and the eventual selection and validation of the preferred vendor. The evaluation of vendors involved access to vendor demonstration systems through campus terminals, a review of vendor applications and technical documentation, and telephone calls and visits to other user sites. The contract binding SCC and the preferred vendor provided for significant support from the vendor in the areas of training, implementation, and the development of custom software to insure the effective implementation of all system modules and the development of expertise on the part of SCC personnel. A framework for implementation was proposed by and reviewed with the vendor, and the implementation plan for the new system was finalized jointly by SCC and vendor personnel following contract approval. Considerations related to implementation included hardware availability, selection of a temporary location for the new hardware, and the development of a schedule for user and technical staff training, database conversion, systems testing, and production changeover. Financial considerations related to the new system included contract costs for hardware and software, costs for all modules, support and training costs, and custom software charges. First-year and projected maintenance costs were also identified. (JMC)

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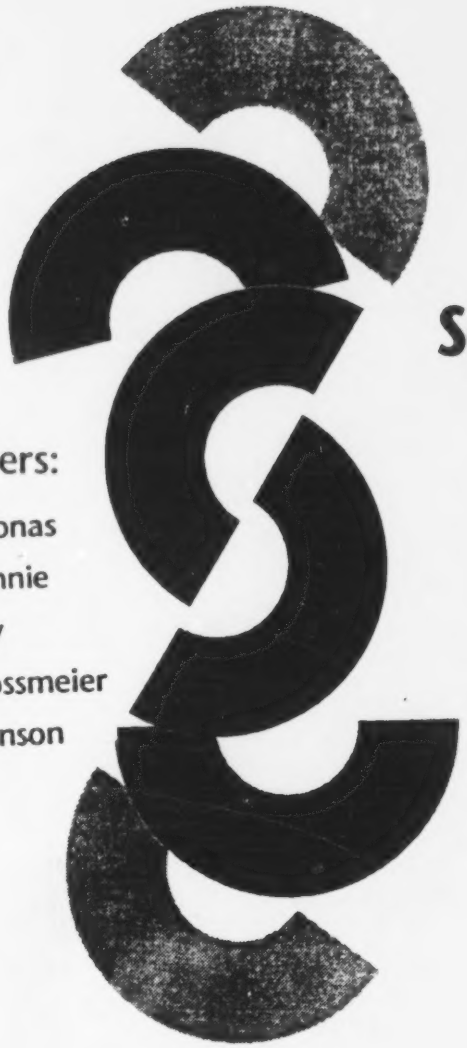

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Stephen Jonas
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The 1990 Annual Conference of the League for Innovation in the Community College

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SELECTING AN INFORMATION SYSTEM FOR THE 90's
CAN A USER DRIVEN SYSTEM WORK? *YES!*

INTRODUCTION

In the spring of 1988, Sinclair Community College began a comprehensive study of the need for a new administrative information system; the study eventually led to the development of the options available to meet that need, the selection of a preferred vendor, and an intensive analysis of the ability of the preferred vendor to fulfill Sinclair's expectations regarding the short- and long-term value of the proposed investment in new information technology. The College determined in advance that a significant level of College-wide user participation was essential for a meaningful study.

The primary focus of the study was to identify an information system that would improve the College's effectiveness and flexibility in providing the kinds of educational and administrative services required to meet the changing demands of the institution. To a great extent, improved effectiveness and flexibility were expected to be accomplished through a system that would expand the availability of applications; expand access to applications and data to a greater number of students, faculty, and staff; and, provide a base for continued growth in application and access areas.

An Information Systems Planning Committee provided College-wide coordination for the development of a Request for Proposal (RFP) that reflected user department and technical needs, the evaluation of various proposals against the criteria in the RFP, and the eventual selection and validation of the preferred vendor. The evaluation of vendors involved access to vendor demonstration systems through terminals located on the Sinclair campus; review of vendor applications and technical documentation; and, for the preferred vendor, telephone calls and visits to other user sites.

The system selected offers benefits in the basic or core applications required for administration of the College in the areas of student registration and records, financial aid, student accounts, general ledger, accounts payable, payroll, and personnel. The system will also provide functional capabilities that are not currently available to these areas and expand applications capability into new areas such as admissions, telephone registration, degree audit, continuing education, correspondence management, and alumni/development. The system will offer a larger group of faculty, staff, and administrators increased access to applications and data through terminals and computer networks. The availability of data access, office productivity tools, and data analysis will offer real opportunities for decision-support and executive support systems to increase effectiveness and timeliness of staff efforts.

Contract negotiations reflected Sinclair's goal of developing a long-term relationship with a vendor committed to providing support for the field of higher education. The contract provides for significant support from the vendor in the areas of training, implementation, and the development of custom software to ensure the effective implementation of all system modules and the development of expertise on the part of Sinclair personnel.

A framework for implementation was proposed by and reviewed with the vendor. The implementation plan for the new system was finalized jointly by Sinclair and vendor personnel following contract approval. Considerations related to implementation included hardware delivery availability; selection of a temporary location for the new hardware during the transition period; and, the development of a comprehensive schedule for user and technical staff training, data base conversion, systems testing, and production changeover to the new system.

Financial considerations related to the new system identified contract costs for the basic hardware and system software; costs for all core application and optional modules; support and training costs; custom software charges; and, costs of modules from other vendors providing office productivity network and telephone registration systems. Projected costs not included as part of the contractual agreements were also identified to provide additional information about the total anticipated investment. Maintenance costs for the first year and projected maintenance costs for subsequent years were also identified.

RATIONALE FOR A NEW SYSTEM

Administrative Computing at Sinclair Today

Hardware. Two mainframes and a word processor--including peripherals, i.e., printers, disk drives, and terminals--are used to provide data and word processing support to meet the administrative needs of Sinclair users. The mainframes and their peripherals are based on 1970's technology and are ancient by today's standards.

Software. A software program developed in-house in the early 1980's supports the registrar, financial aid, and bursar functions. Financial and fixed asset accounting, purchasing, and payroll functions are supported by a software package purchased in the early 1980's. Over the years, both programs have been brought to an acceptable level of performance to meet specific needs of certain users. However, the database structure and basic software tools required to meet additional applications needs of all current and potential Sinclair administrative and academic users are not available.

Administrative Computing at Sinclair in the Future

Future Expansion/Needs. An information system that incorporates recent hardware and software advances was needed for Sinclair to move into the 1990's. More emphasis is being placed on marketing strategies, optimum resource utilization, and student retention. Therefore, an integrated information system that would allow all administrative and academic users to have access to and analyze relevant data with minimum assistance from the Information Systems and Services (ISS) staff was essential. Students would also benefit directly since new features such as degree audit, telephone registration, prerequisite checking, and class waiting lists would be available to them. Furthermore, access would be available to any authorized user with a microcomputer (PC) attached to a network. This means that a PC would be able to serve both as an independent workstation and as a terminal on the network with access to the mainframe, eliminating the need for having both a PC and a separate terminal. Off-campus telephone access from home or a temporary registration site would also be possible by using a PC with a modem.

Database. An integrated database that would eliminate data redundancy and permit users to extract, analyze, and print data relevant to their functions in a timely manner was needed. The current database is fragmented, incomplete, and not readily accessible to users without assistance from ISS staff.

Enhancement of the Existing System. Because the existing system had been highly customized over the years to meet users' needs, consideration was given to enhancing it. The current database is inadequate and would have to be converted. Totally new software programs as well as hardware would also be needed. In essence, a total rewrite would be required to enhance the current system. The patchwork development that occurred in the past would never allow Sinclair to achieve the level of data integration required to support on-line access to information required for today's decision-making needs.

Decision-Support Tools. In order for users to be more independent of the ISS staff for routine decision-making information needs, state of the art decision-support and report-writing software was needed. Authorized users should be able to download data, analyze it using mainframe decision-support software or PC spreadsheet/database software, and print out results without leaving their work areas or needing to seek assistance from ISS staff.

OVERALL INFORMATION SYSTEMS PROCESS/CONSIDERATIONS

Consciousness Raising Activities

Software vendors with information systems programs deemed adequate to meet Sinclair's needs were invited to demonstrate their systems to administrative and academic representatives during the summer of 1988. These demonstrations were intended to acquaint users with application systems readily available to meet their needs, determine the feasibility of purchasing an information system that would take advantage of new technology, and identify any serious deficiencies in this approach.

Information Systems Advisory/Planning Committees

Information Systems Advisory Committee. An Information Systems Advisory Committee, consisting of current users and ISS staff, was formed to assess proposed enhancements to the current system and prioritize them for the ISS staff. The intent was to identify essential needs that could not wait for a new system.

Information Systems Planning Committee. An Information System Planning Committee, consisting of top level managers from all areas with information needs, was formed to identify requirements that were not being met by the current system or were beyond the capabilities of the current system without major enhancements. Specifically, the Planning Committee was charged with establishing the objectives of an enhanced information system, reviewing alternative approaches, and identifying the most attractive alternative for implementation.

Alternatives Considered

Maintain the Status Quo. This alternative--namely, to do nothing--was totally unacceptable.

Enhance the Current System. As mentioned earlier, enhancing the current system would require a total rewrite of the existing system. This would be a very expensive process in terms of both time and resources. In addition to new hardware, which would be required in any event, it would require new database software and fourth generation software to rewrite applications. It would also require a thoroughly skilled and stable ISS staff to develop the system logic and write the application programs, as well as the total involvement of users in the entire process from beginning to end. The result would be a highly customized system that would incur in-house program maintenance costs throughout its life.

Purchase an Existing System. The Information Systems Planning Committee concluded that the only acceptable solution was to purchase an "off-the-shelf" generic information system that would be available for a known fixed cost and would have annual maintenance costs shared by all users. Since hardware requirements would be determined by the software to be used, a decision was made to solicit proposals from software vendors and to let them propose hardware solutions appropriate for Sinclair's environment. In addition, it was decided to establish appropriate criteria to ensure that potential vendors could support an environment having the size and complexity of Sinclair.

Development Philosophy

Sinclair's philosophy was to follow a hierarchical approach to meeting user requirements. This meant that:

- The application software system had to be capable of allowing Sinclair users to set parameters to tailor the system to meet Sinclair needs, e.g., quarter beginning and ending dates, summer terms, federal and state financial aid requirements, etc.

- Software development tools that could be readily implemented by user departments (i.e., that are "user friendly") were required. If additional technical support were needed for some of the tools, it should be capable of being provided through Sinclair's ISS User Support Office.

- The software vendor had to be receptive to requests for incorporating additional features into future releases of standard application products. In addition, the vendor had to be receptive to negotiating custom tailored changes for inclusion in application products. If the software vendor were unable to provide timely or cost effective support, in-house software development deemed essential to the Sinclair mission should be able to be undertaken by ISS staff. Any such in-house development should not affect continued vendor support of core applications or the ability to install new vendor releases.

- Application products from other vendors that would interface with the software vendor's products could be purchased, e.g., a telephone registration system. Support for these products could be requested from the software vendor or provided by ISS staff; however, the third-party software had to interface with the vendor's product.

Consulting Contract

A consulting firm was hired to assist Sinclair in the development of the RFP and the process of selecting a vendor for the new information system. Staff members from the firm had extensive experience in higher education information systems consulting.

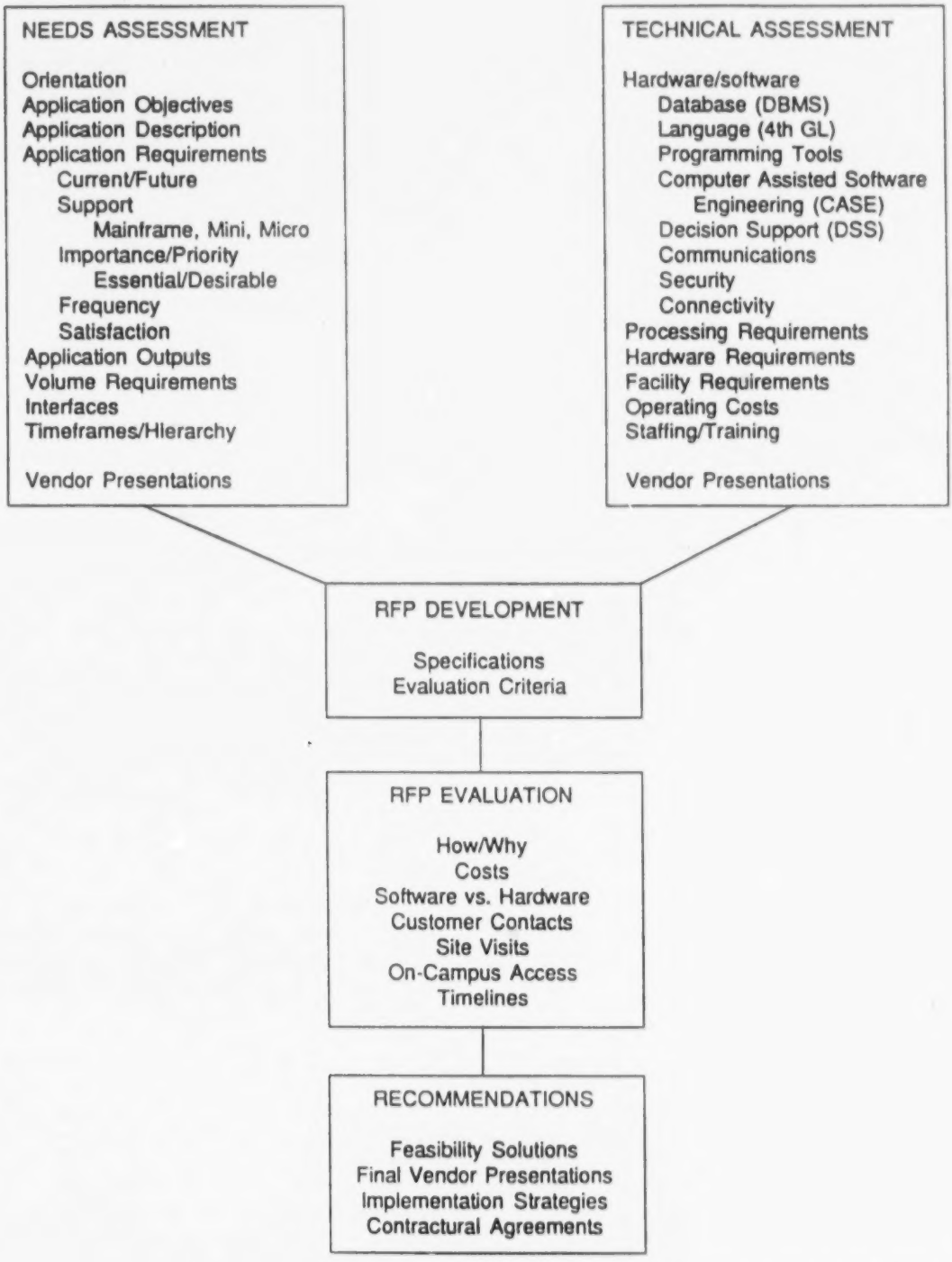
REQUEST FOR PROPOSAL (RFP) PROCESS

RFP Development Process

The RFP was developed over several months of intensive effort by Sinclair users and ISS technical staff, with consultant involvement. Figure 1 illustrates the development process for the RFP. Major systems were identified, e.g., registration, academic advising, purchasing/receiving, alumni/development, etc. Committees were established for each major system. Each committee was chaired by a director or a top staff member (called a champion) and included an ISS technical staff member thoroughly familiar with the system's functions and staff members representing other areas of the College that would either be working with the system or affected by its operation.

The committees were charged with developing the application requirements for the RFP. Technical requirements were identified by ISS staff. The committees also evaluated each vendor's response to the RFP and participated in "hands-on" demonstrations of each vendor's products.

Computer Information System Development Process



Needs Assessment

As application requirements were identified by user committees, they were categorized as essential or desirable. Information regarding data input, output, volume, etc. was provided by ISS staff. All proposed application and technical requirements underwent intensive review by the consultants, Sinclair's Vice President for Administration, and other appropriate College personnel prior to the development of the final requirements included in the RFP. Vendors were asked to respond regarding their ability to meet the needs and to identify additional needs that could be met by modifying existing application software. An example of specific application requirements included in the RFP is shown below.

SPECIFIC APPLICATION REQUIREMENTS

Each of the requirements listed below is accompanied by a series of letters, A through E. Vendors must include a copy of this requirements section in their proposals with a letter circled for each requirement listed. The meaning of each letter code is explained below:

A. Feature or function currently exists and can be demonstrated.

B. Feature or function exists, but must be modified prior to implementation to meet specific requirements.

C. Not currently available, but will be provided prior to implementation at no extra charge.

D. Not currently available, but will be provided prior to scheduled implementation at an additional cost (identify in cost section).

E. Feature or function not included in proposal.

Each requirement is also accompanied by a priority ranking: E - Essential or D - Desirable.

E. STUDENT ACCOUNTING SYSTEM

[D] A B C D E 1. Repetitive processing of student payments automatically posts the payments to the student subsidiary account receivable and the general ledger control account without additional key strokes.
- Two modes of operation for repetitive processing on cash registers.
  student payments
  miscellaneous receipts

[E] A B C D E 2. To provide an audit trail for Miscellaneous Accounts Receivable, the cashiering system will accept:
- College invoice number
- customer check number

[E] A B C D E 3. Each item processed through the cash register is assigned its own transaction number (consecutively assigned).

[E] A B C D E 4. While processing a student payment the following processes, screens, or printouts are available:
- a student fee bill may be printed
- a student account statement may be printed
- a copy of the screen display may be printed
- a preassigned register key identifies a specific transaction code (method of payment, cash back, adjusting entry, etc.)
- on-line audit prevents out-of-balance entries
- distribution to one or more accounts from one payment

Vendor Eligibility

In view of the fact that the selection of the most suitable vendor would be extremely important to the successful implementation of a new information system, Sinclair established primary eligibility criteria as guidelines for the College's expectations regarding the vendor's qualifications and proven track record of success. Vendors were asked to submit a "Notice of Intent to Bid" prior to submitting a detailed proposal. The "Notice of Intent to Bid" was to be accompanied by a statement of qualifications for meeting the primary eligibility criteria and vendor financial data. The "Notice of Intent to Bid" process was intended to serve two purposes. It provided vendors with the primary eligibility criteria so that vendors who could not meet the criteria could opt to avoid the expense of preparing a proposal that might not be considered. It also allowed Sinclair to determine "up-front" how many proposals would need to be evaluated.

The primary eligibility criteria included:

- An historical commitment to developing and supporting administrative application systems in the higher education environment as demonstrated by successful implementation and continued operation of integrated student information and financial management systems in at least 20 colleges/universities. At least five of those institutions had to be community colleges with fall head count enrollments of at least 7,500 students.

- Comprehensive offerings of administrative systems fully integrated and completely documented in support of the following functions: Student Information System, Financial Management, Human Resources/Payroll, and Alumni/Development.

- The vendor had to be able to accurately verify and document the demonstrated ability of its products to support transaction and record volumes equal to or greater than those anticipated by Sinclair.

- An historical and continued commitment to improving and enhancing administrative systems with new state of the art technologies including databases, fourth generation languages, development and productivity tools, connectivity capabilities, and user oriented query tools.

- An historical and continued commitment to offering administrative application systems software on currently supported hardware, as well as hardware configurations that might be offered by the hardware vendor in the future.

- A willingness to provide Sinclair with on-line access to a demonstration system from the Sinclair campus during the proposal evaluation period for the purpose of allowing the user community to verify and evaluate the vendor's proposal.

- Providing Sinclair, along with the submission of the "Notice of Intent to Bid," a copy of each user and technical manual associated with the proposed software system.

RFP Submission

Twelve software vendors received RFPs. Six submitted "Notice of Intent to Bid" documents. On the basis of those submissions, Sinclair disqualified one vendor; another withdrew prior to submitting a detailed proposal. Four vendors ultimately submitted detailed proposals. Software vendors were instructed to propose hardware solutions appropriate for Sinclair's environment since some vendor's software will run on several different mainframes and can use a variety of operating systems.

EVALUATION PROCESS

Participants

User committees, ISS technical staff, the consultant, and members of the Information Systems Planning Committee participated in all phases of the evaluation process.

On-Campus Applications Review

All four software vendors were scheduled to demonstrate their systems on campus over a two-week period. User committees met with vendor representatives for live demonstrations and hands-on experiences. In addition, several third party vendors provided live demonstrations, e.g., telephone registration and office automation systems. The primary purpose of the on-campus demonstrations was to validate vendor responses to the application and technical requirements set forth in the RFP.

Evaluation Criteria

A set of application and technical criteria was developed to correspond with the data presented in the RFP and to provide a process for the overall evaluation. The overall evaluations of the proposals from the four vendors were weighted to reflect Sinclair's relative value for application and technical areas--65% for application and 35% for technical.

Other general criteria used to evaluate the proposals included, for example:

- Overall ability to meet system requirements;
- Costs;
- Vendor's financial health and stability;
- Past performance on projects of similar scope and size;
- Vendor's ability to successfully complete the project with the proposed resources within the proposed schedule;
- Proposed contract terms and conditions;
- Overall quality and soundness of the proposal;
- Ability to meet data conversion requirements;
- Ability to meet communication requirements;
- Compliance with standard audit control procedures;
- Scope and quality of proposed documentation;
- Availability and scope of custom development;
- Implementation strategy and commitment of resources;
- Level, timeliness, and proximity of service and support;
- Proven experience and commitment to educational systems;
- General ease of use of the system;
- Ability to offer suitable data and system security;
- Client satisfaction and quality of relevant references;
- Quality of presentations and demonstrations;
- Quality of site visits;
- Scope and quality of user training programs, both during implementation and on an ongoing basis;
- Characteristics of proposed hardware and software;
- Quality of vendor personnel responsible for implementation and training; and,
- Sinclair Community College personnel requirements.

Application Evaluation

Following the live demonstrations, user committees and the ISS technical staff, in conjunction with the consultant, quantified each vendor's response to the RFP using previously established criteria. Based upon this evaluation, one vendor's applications running on a specific computer emerged as the solid choice preferred by the users. The ISS technical staff's evaluation, however, showed a clear preference for a different vendor's software and hardware solution. A qualitative evaluation again showed a clear preference for one vendor by the users. In the interim, additional technical evaluations were conducted to explore issues related to the proposal submitted by the vendor preferred by users.

Site Visits

User committee champions, the consultant, and ISS representatives visited three institutions that had installations similar to that proposed by the vendor preferred by users.

Each champion prepared a list of functional questions from their respective application area. In addition, the following issues were addressed as part of the site visits:

- What was the level of support required during implementation? What was the role of college personnel and the vendor?
- What was the level and quality of on-going support provided by the vendor (e.g., responsiveness, timeliness, accuracy of answers, etc.)?
- What modifications were made to the vendor's software? Who had responsibility for making changes (in-house vs. vendor)? What functional requirements have not been met by the application software and would require enhancements to effectively conduct these operations?
- Does the institution participate in vendor "user groups?" What is the process for identifying and prioritizing requests for modifications and/or enhancements? Does the vendor support networking with other users?
- What is the quality of the overall application training program, including materials, instructors, manuals, etc.? What is the quality of user, application, and systems documentation?
- What was the impact of the system on department operations-- including operational adjustments, changes to staff mix, size of staff, procedures, impact on students and faculty?
- What was the general impression concerning application response times (peak vs. non-peak), system performance, reliability, etc.?
- How much support was provided by technical staff to user departments? Are user friendly software tools (e.g., report writer, etc.) provided to user departments to assist in generating reports and extracting decision support data from the database?

One institution, a community college, installed the vendor's software several years ago. Not all modules of the software were used and the college's method of operation was different from the one Sinclair intended to use. The college's computer services staff did not permit users to create ad hoc reports; all ad hoc reports had to be written by technical staff and such reports were not encouraged. Sinclair's intent was to allow and, in fact, encourage users to develop their own ad hoc reports and receive hard copies at their work sites.

Champions from the registration, bursar, accounting, and alumni committees visited another institution. Their reviews were not restricted to their specific committees' areas of interest. That institution installed the preferred vendor's software several years ago and recently upgraded its mainframe to improve performance. The method of operation was very similar to the one Sinclair intended to use.

Champions from the registration, bursar, financial aid, and alumni committees visited a third institution. The college had installed the system several years ago, but only recently began to implement it. Unlike Sinclair, the college did not involve users in the decision-making process. Consequently, its users were not unanimous in deciding to accept the software for their operations. The relatively recent addition of a strong computer services manager helped to resolve some of the problems. The college's computer staff and academic and administrative software managers were enthusiastic in their support of the system. An exception was the financial accounting department which preferred another software system.

Sinclair users and technical staff learned a great deal about what not to do in implementing and operating a new information system. For example, Sinclair's goal is to train all users to have the ability to access the system, download data, analyze it, print out results locally (with minimum assistance from the ISS technical staff), and not to restrict users unnecessarily. In general, the users and the technical staff at the three institutions were very satisfied with the software and hardware configurations. They were also satisfied with the ongoing support they received from the software and hardware vendors both during and following implementation. User groups, at both state and national levels, were praised.

Technical Evaluation

The initial technical evaluation was carried out in conjunction with the user evaluation of the four software vendors. This evaluation resulted in a *technical ranking* of each system.

The user evaluation of applications indicated significant concerns for the effectiveness and efficiency of the applications available from three of the four potential vendors. (One vendor had an unacceptable number of essential application items requiring development. User staff members were concerned that several key features of another vendor's applications were under development.)

The clear choice of the user representatives on the Information Systems Planning Committee was one specific vendor.

Given the importance of user applications for the future direction of Sinclair and after the Planning Committee's review of the technical findings, the technical aspects of the specific vendor were investigated further. This investigation included:

- Telephone conversations with other institutions,
- Visits to sites where the system was being implemented,
- A benchmark test and a visit to the hardware firm's home office, and
- A demonstration of the capability to communicate between the proposed system and Sinclair's computer networks.

The primary objectives of the follow-up investigation were to review the relative values given to one technical proposal vis-à-vis others, determine the impact of any technical concerns on the user community, and assess the risks to Sinclair of the proposed installation. The technical review focused on system performance, system recovery, user access, the hardware migration path, data base management software, system security, connectivity of terminals and computer networks, and software development tools. *As a result of the investigations, it was determined that the proposed hardware and software configuration would meet Sinclair's needs.*

Other Information

Several factors were used to compare other colleges' experiences with the Sinclair environment:

- Was the decision driven by the user community or the technical staff?
- What was the current hardware configuration including terminals, point-of-sale (POS) equipment, printers, etc.?
- How did staffing levels within the technical area compare with Sinclair staffing levels?
- What were the on-going operational costs (e.g., staff, maintenance, etc.) to support the system?
- What were the activity levels/transaction volumes in various areas (e.g., student enrollments, peak registration, accounting, payroll, etc.)? Was system performance acceptable? Did the hardware configuration and activity levels validate the system proposed by the vendor?
- What types of fine tuning efforts and techniques have been implemented to improve performance? What types of tools/reports have been used to monitor/measure system performance, response times, transaction volume during peak/non-peak periods?
- How was system recovery handled, including timeframes, procedures, alternative plans during recovery? Was disk mirroring used?
- What problems occurred during conversion to the new system? Were there programs available to do automated file conversions?
- What was the quality of support/responsiveness provided by the hardware and software vendors?
- To what extent did the college distribute access and control to user departments?
- What modifications were made to the vendor's application programs? Who was responsible for making the changes? What modifications have been requested?
- How much development is being done by the college's computer staff? What tools were being utilized?
- What other applications were currently being supported (e.g., academic computing, library information system, voice registration, etc.)?
- What was the learning curve for technical staff to get up to speed on the equipment, application software, database, tools, etc.?

BENEFITS OF A NEW INFORMATION SYSTEM

User Benefits

The system would provide applications to meet the basic functional and performance needs of Sinclair users:

Admissions. Provide tools for recruitment and analysis of potential students, management of prospects and applicants, and appropriate reports and statistics.

Registration and Academic Records. Provide for maintenance of master course inventory, term course schedules, registration, grading, transcripts, and end of term processing.

Financial Aid. Maintain, track, process, and report all information associated with financial aid prospects, applicants, and recipients.

Financial Management Information System Modules. Provide modules such as accounts receivable (including student accounts) accounts payable, general ledger, purchasing, payroll, fixed assets, and inventory.

Human Resources. Provide all of the basic personnel functions, including the maintenance of current and historical employee data.

The purchased system would provide additional applications and functions not currently available in the following areas:

Tracking System for prospective students and applicants.

Correspondence Management to improve mailings to selected groups of students using a direct interface with the Student Information System database and other databases on the mainframe (database marketing).

Telephone Registration to allow students to register for classes from home or other off-campus telephones.

Grade Scanning of approximately 45,000 course grades each quarter.

Course Prerequisite to automatically flag students who do not meet the appropriate requirements.

Degree Audit System to improve advising services to students, ensure that students stay "on track" in their efforts toward graduation, and facilitate the review of alternative degree opportunities.

Financial Aid System to improve application tracking and provide automated packaging, loan management, and on-line needs analyses.

Continuing Education System to record and process all information related to non-credit/continuing education (registration, billing, and record keeping).

Alumni/Development System to track pledges and gifts to the College Foundation and to automatically transfer records from student files to alumni files upon graduation.

Human Resources System to provide position control, improve correspondence control with employees and applicants for positions, and expand capability to handle personnel data for part-time employees.

Purchasing System for on-line tracking and control of requisitions, purchase orders, and the acceptance of goods.

Cashiering System to provide point-of-sale microprocessor based units networked to the central computer for the Bursar and Bookstore.

Bar Coding to reduce manual keying and keying errors in the areas of stock requisition, consumable inventory, and fixed asset inventory.

Facilities Management System to include scheduling of on- and off-campus facilities, campus events scheduling, and facilities assignment.

Budgeting System to provide for fully automated budget development by allowing department managers to enter their requests and justifications on-line.

Academic Course/Program Management to provide capabilities for simulating and reporting financial performance; and, to improve our ability to reach optimal decisions about course scheduling, course cancellations, faculty resource allocations, etc.

Decision-Support System to allow user access to an integrated data base so that data from the Student Information System, Financial Management System, Payroll, and Human Resources can be brought together for various reporting and analysis purposes.

User Access will be increased significantly: users will be able to initiate and print production jobs directly from user departments; to access the data base using a report writer, making it easier to conduct quick analyses and provide relevant and timely information for decision makers across the campus; to access the system from the Local Area Networks; and to upload and download mainframe data into microcomputers.

Office Productivity Network to be used for electronic mail, individual calendaring, scheduling appointments and meetings.

Library Information System for circulation, catalogue, serials, acquisitions, public access, and dial up access.

Security Access and Control by user departments at the application, terminal, and data base levels will be increased.

Institutional Networking. User department managers and staff will be able to interact with peers at other institutions using the vendor's system. Users Groups exist at state and national levels and are highly recommended as forums for the exchange of ideas, resolution of problems, and specification of needs to the vendor.

Additional Benefits. Strong potential exists for new applications and improved features that will be developed by the vendor to support higher education. The vendor has consistently upgraded the capability of the system in both core applications and enhanced applications such as telephone registration, degree audit, and budget management.

The Users Group is an active and vocal group of users who interact directly with the vendor to propose and define requirements for new functional capabilities for the system. The vendor is prepared to undertake custom software changes to meet specific institutional needs and to participate in partnership agreements on projects that have broader market appeal. The vendor is also committed to identifying third party software that can be made available to further support its client base, e.g., Office Productivity Network and Cashiering.

Technical Benefits

The new information system will provide specific technical benefits:

- Core applications and custom software changes maintained by the vendor, providing increased staff time for other user-oriented development and support activities.
- Enhanced software development tools (e.g., fourth generation programming language, query/report writer, and tool sets for ease of development and prototyping).
- Industry standard communications capability for asynchronous terminals currently installed and for the microcomputer communications network and other processors using TCP/IP.
- Capability for expansion through distributed networks using fiber optic links and distributed data base management systems.
- An effective data base management system that could be expanded to meet the increasing needs of the institution.
- Capability to migrate to other hardware platforms and operating systems.
- Disk mirroring capability that will provide improved data access times and automatic back up and recovery for disk problems.
- Automated process for identifying illegal sign on attempts and expired passwords.
- Smaller space requirements for system hardware, lower power consumption, and reduced maintenance costs.
- More efficient magnetic tape back up systems.
- Local support for all hardware and operating systems software.
- A benchmark system to conduct appropriate performance tests for new features and applications.
- Application and system support from expert support staff.
- Ability for technical staff to interact with peers at other institutions using the system.

CONTRACT PROVISIONS

The contract between the vendor and Sinclair include the following major provisions:

Long Term Commitment

The contract reflects the vendor's acknowledgment of Sinclair's expressed condition to enter into a agreement with an information systems company that has the capability and long-term commitment to provide Sinclair with ongoing and continued support and maintenance for the services and products purchased by the College. To further ensure the College's position, all source code for standard software and custom software changes will be provided to Sinclair.

Hardware Capability

The contract provides assurances that the vendor will have configured the hardware system to support the needs of Sinclair as specified by the Sinclair RFP. Provisions of this assurance are that Sinclair will follow recommendations on hardware/software maintenance and system tuning, file sizing, and job mix.

System Acceptance

Under provisions of the contract, all testing, simulation, and acceptance will be guided by an implementation plan. This plan includes acceptance procedures for custom software changes, the integration of custom changes into appropriate modules, the acceptance of modules, and the acceptance of the system. In addition to functional acceptance, system performance testing will also be conducted to ensure that performance with custom software changes continues to meet the performance criteria contained in the hardware capabilities assurance.

Custom Programming

The contract includes cost estimates for implementation of items that are either unique to the Sinclair environment or are not planned for availability within the Sinclair implementation timeframe. Custom software will include appropriate user and technical documentation and will be subject to acceptance by Sinclair. A control mechanism has been established to ensure that only properly authorized projects will be undertaken and that detailed implementation will not occur prior to mutual agreement on design specifications.

Partnership Items

In recognition of the long-term cooperation between Sinclair and the vendor, certain development items are identified as joint activities. The intent is to provide system modules that are not currently available but that have general marketplace potential. The systems will be designed, developed, and tested as a joint project with defined responsibilities for each party and a sharing of project costs.

Third Party Software

The vendor warrants that all third party software included in the contracts is capable of interfacing with the vendor's software and with any custom software.

Implementation Support

The vendor will provide all necessary on-site training for user department and technical staff, as well as planning, consulting, and conversion programming services for implementation of the system. Implementation is scheduled to occur over an 18-month period.

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